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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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Signal Valves in Marine Diesel Plants

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1. Modern marine diesel plants, especially those with high-speed internal combustion engines, are frequently equipped with a system of safety and signal devices which in their aggregate are designed to guarantee damage free operation of the assembly. Signal devices are designed to give warning in case of non-normal operating conditions of the assembly which threaten its safety.
2. In some marine Diesel plants (and in the overwhelming majority of turbine plants) so-called signal valves are installed. These valves are connected with safety regulators which are intended to stop the engine by means of the fuel pump when the engine's revolutions exceed the normal revolutions by 10-15%. The signal valve gives a signal until the limit-switch begins to operate (usually when revolutions increase by 5%). The signal may be a howling, Typhoon signal, etc. For example: One of the Caspian Shipping Line's fleet unit is the Diesel-Electric tanker "General Asi Aslanov" with a net tonnage of 9500 tons. The Diesel-Electric plant of the tanker consists of four main Diesel-Generators (DD) which provide current for two propeller electro-motors (TJD), which in turn cause the propeller screws to rotate. As main Diesel generators on the tanker, standard Diesel generators built for railroad trunk-line locomotives were installed. The model of the engine is "D-50". The normal power of each of these engines is 1000 effective HP with 740 revolutions per minute. "D-50" engines are four-cycle, six-cylinder, supercharge engines. These engines are equipped with safety regulators, which cause the Diesel engine to come to a stop by means of the fuel pump when the increase of revolutions of the Diesel over the normal rate represents 10-15% that is, 850 revolutions per minute. Signal valves which give signals even until that moment when the safety regulator goes into action are connected with the regulator. The signal is given when the number of revolutions over the normal rate increases by about 5%, that is, when the engine makes 780 revolutions per minute.

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